CHAPTER 3. TMDE UTILIZATION INFORMATION

3-1. ANALYZER, GAS, ANESTHETIC, 6630-01-487-6987

a. The accessory kit provided with the RIKEN meters initially may not have included the hose assembly that connects between the fresh gas outlet of the Narkomed-M Anesthesia Apparatus and the inlet port of the meter itself. To make this hose assembly, use a fresh gas hose (Draeger Part Number 4108577). Glue the end that connects to the absorber assembly into the small end of the "tee" that comes with the RIKEN meter kit. Attach the white tubing that goes to the RIKEN inlet port to the barb on the "tee."

b. The equipment manufacturer does not have a replacement part number for the 13/16" od tubing that goes from the high pressure regulator to the cylinder gauge inside the anesthesia unit. For repairs, this must be purchased locally and cut to fit.

3-2. AUTO SEQUENCES, FLUKE BIOMEDICAL/DNI TEST EQUIPMENT

a. There have been several instances noted in which TMDE that comes with defaulted auto sequence options are not consistent with the medical equipment OEM's test procedure and/or standard.

b. Repairers should print a copy of the auto sequence and verify all test procedures (settings are appropriate and the tolerance is correct) required to properly test the item of equipment IAW the OEM standards are included prior to testing an item of medical equipment. If you discover the auto sequence is incorrect, you may reprogram the auto sequence manually to comply with OEM standards.

c. The most notable inconsistencies are when testing the Valleylab Force 2 Electrosurgical Unit in which case the RF leakage tests set in the TMDE auto sequence uses an open load and should use a 200 ohm load; and the Lifepak 10 Defibrillators in which case the tolerance set in the TMDE auto sequence is 15 percent and should be 7 percent.

3-3. CALIBRATOR – ANALYZER (VT-PLUS), 6515-01-491-6615

a. The 754M Ventilator was designed to only communicate with the RT200 Calibration Analyzer. The Fluke Biomedical VT-Plus, with the ability to emulate the RT-200, can also be used to calibrate and service the 754M ventilator.

b. Although previous versions of firmware allowed the ability to calibrate the 754M, repairers were often confused because the screen would request "RT-200 specific" input during the calibration procedure.

c. Recent software revisions for the VT-Plus and VT-Plus-HF are available to assist repairers with servicing the 754M ventilator with minimal perplexity. The newer revisions provide true "Emulation" thus the software recognizes the TMDE as a RT-200 and goes directly into the calibration mode. The software revision number can be found on the warm-up screen, when the unit is first turned on.

(1) For the VT-Plus, Software Revision Number 1.07.03 or higher is recommended.

(2) For the VT-Plus-HF, Software Revision Number 1.08.06 or higher is recommended.

(3) Contact your local TMDE Support Center or MSD TRACY California for upgrades.

3-4. MULTIMETER, RADIOGRAPHIC, PMX-III, 6525-01-387-0212

Software Improvements Version 5.2 System, provides Improved Continuous Mode measuring. The new Software Version 5.2 for the PMX-III enables the repairer to select any parameter (kVp, MA, Time, MAS) to be displayed during an exposure using the Continuous Mode.

a. The parameter to be displayed is preselected by using the Parameter key. This new capability enables the repairer to see the real-time values of dose and dose rate during the exposure. Previous Software versions involved limitations in the Continuous Mode allowing only visibility of kVp until exposure completion at which time all measured values could then be viewed by scrolling through the display.

b. Manual reset for the electrometer is available also in the MULTIMETER mode. The function key F3 works as RESET key in the MULTIMETER mode in the following cases. The normal function is the SETUP table #1 is loaded when the F3 is pressed. However, when dose or dose rate is selected by means of the PARAMETER key this function is overridden and a reset of the electrometer is preformed. If no SETUP table is programmed to the F3 key, it works as RESET key in all situations both in the MULTIMETER and DOSIMETER mode.

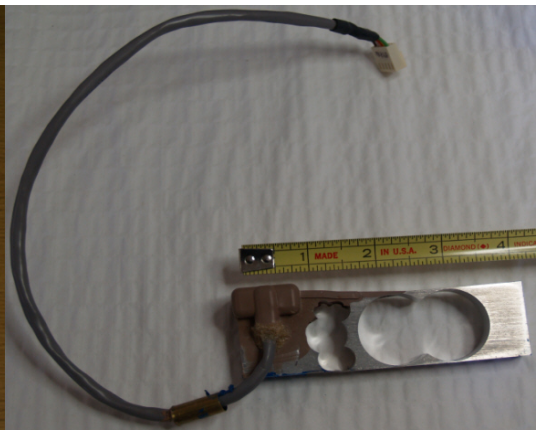
3-5. ULTRASONIC WATT-METER, UW-4, 6625-01-504-2654, SHIPPING DAMAGE

a. USAMMA, MMOD-Tracy TMDE Shop has received a large number of Ultrasonic Watt-meters for calibration. Of the Watt-meters received, approximately 35% of the units received have had damage to the load cell.

(1) The load cell of the watt-meters is being damaged in shipping due to improper packaging of the target cone. Every damaged unit has been shipped to the TMDE shop with the brass target cone or the AC power adapter placed inside of the transducer well. During shipping, any object in the well area can bounce against the load cell causing damage. If one of these units has had damage to the load cell, an “H” or an “E 54” error message will appear on the display after proper setup of the unit. Repair of these damaged units is approximately $1,400.00, and can only be performed by the factory. As these units have a current acquisition cost of $2,900.00, more often than not the cost to repair exceeds the MEL.

(2) The UW-4 Watt-Meter is a delicate instrument that must be shipped in the correct packaging material. The manufacturer has placed a warning label on the front of the UW-4 clearly stating, “Do not store, transport or ship unit with cone installed or permanent damage may result.” To prevent unnecessary damage while the unit is being stored, transported or shipped, the transducer well must be kept empty. Care must be exercised during handling; even dropping from a short distance can result in internal damage and a subsequent failure.

Target Cone in Transducer Well



Damaged Load Cell

b. The UW-5 is a similar unit and the same precautions in shipment and handling pertain.

3-6. UNFORS 710L, 6525-01-502-0504, METER X-RAY CALIBRATION

X-Ray reproducibility and standard deviation made easy with the Unfors 710L:

(1) Set the parameter to Dose (R or mR on display).

(2) Hold the parameter button for 4 seconds to toggle on Normalization Mode.

(3) Take an exposure as per the manufactures procedures for reproducibility. The Unfors meter will automatically give the value of 1.000 to the first exposure.

(4) The deviation value will automatically display after each exposure.

(5) Record the valves.

(6) Average the decimal portion of each number to give you the Standard Deviation.

(7) Hold the parameter button for 4 seconds to toggle off Normalization Mode.

Example:

- 10-exposure reproducibility test for an Alfa MPDX Dental X-Ray (the standard deviation spec on this unit is < 0.02):
- 10 exposures were taken: 1.000, 1.002, 1.009, 1.003, 1.008, 1.001, 1.005, 1.000, 1.003, 1.005

Add the decimal portion of each exposure. (.036)
Divide the answer by 10 (.0036)
Standard Deviation for the unit is .0036
No calculator or calculus needed.